



ABOVE • Children's Inn guest Hayden Corrie enjoys Zilly, a new therapy dog. See p. 5.

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# nih record

Grand Rounds Presents Surprise Guest

## Can Stem Cell Transplant Relieve Sickle Cell Problems?

By Carla Garnett

**I**t's not often that lecture audiences get to meet study participants. That rare treat occurred recently at Clinical Center Clinicopathologic Grand Rounds.

At first, it was pretty much Grand Rounds as usual. Presenters took turns describing various aspects of the day's topic: "Reversal of chronic complications of sickle cell anemia with hematopoietic stem cell transplantation." Researchers discussed, in particular, the history and nature of sickle cell disease (SCD) as well as clinical details from two cases. All indications pointed to stem cell transplants as a long-term remedy for the pain, organ damage and other debilitating conditions associated with SCD.

But seeing is believing.

NHLBI's Dr. Courtney Fitzhugh then introduced a surprise guest speaker: A graphic designer—who had

SEE **SICKLE CELL**, PAGE 6



NHLBI's Dr. Courtney Fitzhugh (l) introduces surprise guest speaker Adeyinka Taiwo, a participant in an NIH clinical trial.



Simon Sinek speaks at NIH.

## Build Loyalty by Creating a Safe Environment, Sinek Advises

By Eric Bock

To cultivate loyalty among those who report to them, leaders should strive to create an environment in which employees feel secure.

That's the advice ethnographer and leadership expert Simon Sinek offered at a recent Deputy Director for Management Seminar in Masur Auditorium.

"The natural response to safety is trust and cooperation," he said. "We work together to face the dangers and seize the opportunities. If we do not feel safe among our own, our natural inclination is to mistrust each other, mistrust our leaders and look out for ourselves."

SEE **SINEK**, PAGE 8

## Superior Athleticism: Is It in Your Genes?

By Colleen Labbe

Many sports scientists bristle at the notion that athletic talent is a genetic trait. Athletic ability, they say, is not predestined. Rather, it is the result of many hours of disciplined practice. But prominent sports journalist David Epstein has been questioning that "gene-free model" of sports research. An investigative reporter at *ProPublica* and author of the *New York Times* bestseller *The Sports Gene*, he recently shared his thoughts during a keynote address at the NIAMS intramural research program's annual scientific training event, where NIAMS scientific director Dr. John O'Shea—a fan of Epstein's writing—gave the speaker an enthusiastic introduction.

Epstein's work focuses on the intersection where sports, science and medicine overlap. Last year, he gave a dynamic TED talk titled, "Are Athletes Really Getting Faster, Better, Stronger?" that has garnered millions of views. The NIAMS audience was smaller than the average TED crowd, but no less engaged.

SEE **ATHLETICISM**, PAGE 4



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NIH...Turning Discovery Into Health

## briefs

### 19th Annual Free Outdoor Film Festival

The movie line-up has been announced for the 19th annual Comcast Film Festival, which will take place for 3 nights from Friday, Aug. 21 to Sunday, Aug. 23. The festival is located at the MCPS Board of Education at 850 Hungerford Dr. in Rockville. This year's festival will be a drive-in, allowing you to watch the movie on a 52-foot-wide screen from the comfort of your car. If you wish to watch the movies on the lawn you can do that too; just bring your blanket and low chairs.

There will be amusements and games, free movies and food and drinks will be available to purchase on site. There will also be a raffle and donations to help raise funds for the NIH Charities (Friends of Patients at the NIH, the Children's Inn and Camp Fantastic/Special Love). Volunteers—teens and adults—will be needed for one or a few nights.

This year's films will be:

Aug. 21 *How to Train Your Dragon 2* – PG

Aug. 22 *Interstellar* – PG-13

Aug. 23 *Guardians of the Galaxy* – PG-13

For details on volunteering email Katie at [kcurtis.nih15@gmail.com](mailto:kcurtis.nih15@gmail.com).

### Pacak Wins Endocrinologist Award

*The American Association of Clinical Endocrinologists recently presented Dr. Karel Pacak with its Outstanding Clinical Endocrinologist Award. Pacak is senior investigator in the NICHD section on medical neuroendocrinology. He was recognized for his dedication to patient care and his knowledge of clinical endocrinology. His research involves patients with two rare tumors: pheochromocytoma and paraganglioma. Both tumors can make hormones related to the stress response. Patients with these feel anxious and have high blood pressure. Because such symptoms are common and the tumors are rare, patients may go undiagnosed for years. Pacak's group does translational research, applying lessons from basic research to learn how to diagnose and treat patients better.*



### Why Scientific Public Service?

Jon Lorsch, Ph.D.  
Director  
National Institute of General Medical Sciences  
National Institutes of Health  
Department of Health and Human Services



*NIGMS director Dr. Jon Lorsch is among the NIH staff members who have been featured in iBiology videos. He has also answered questions from the scientific community during online Q&A sessions that iBiology periodically hosts.*

### NIH-Funded Video Resource

Whatever your NIH role—scientist, student, writer or many others—you might be interested in iBiology ([www.ibiology.org](http://www.ibiology.org)). This online collection of more than 350 free scientific videos includes research lectures on a wide range of topics plus shorter talks focusing on professional development and career advice. Many of the videos feature NIH-funded investigators and some feature NIH staff members.

Long-time NIH grantee Dr. Ron Vale of the University of California, San Francisco, started the project in 2006 to give people around the world the same kind of access to top-notch research seminars that we can experience on the NIH campus nearly every day. iBiology is funded in part by NIGMS.

In addition to watching and linking to iBiology videos, you can volunteer to be a speaker, suggest another speaker or topic or serve as an "iBioAmbassador."

For details, visit the iBiology web site or email [ibiology@ascb.org](mailto:ibiology@ascb.org).

### Children's Inn Appoints Two to Board

The Children's Inn at NIH recently named two new members to its board of directors: Dr. Robert J. Filippone, vice president, U.S. policy and government relations at Merck, and Brian Kelly, editor and chief content officer of *U.S. News & World Report*.

Filippone and his team represent Merck in Washington, D.C., and are responsible for U.S. policy development and legislative advocacy on Merck's key federal issues.

Kelly has led the transformation of *U.S. News* from a traditional print news magazine to a largely digital publishing company with a range of influential products, including the Best Colleges and Best Hospitals rankings.

# nih record



## Groopman, Hartzband Delve into the ‘Medical Mind’

By Ellen O'Donnell

When faced with making a difficult decision about medical treatment for yourself or someone else, are you more of a “Do everything possible” type or a “Less is more” type? Would you rather be treated with the newest prescription drug or a dietary supplement that you think is “more natural?”

The answers reveal a few aspects of your unique “medical mind,” a key theme of the sixth annual Stephen E. Straus Lecture in the Science of Complementary Health Therapies. The lecture by Drs. Jerome Groopman and Pamela Hartzband on “When Experts Disagree: The Art of Medical Decision-Making” honored NCCIH’s founding director.

Groopman and Hartzband, an oncologist and endocrinologist respectively and a husband-and-wife team, are on the faculty of Harvard Medical School, where Groopman is Recanati chair of medicine and Hartzband is assistant professor of medicine.

They developed their concept of a medical mind—i.e., a mindset and orientation unique to every person that informs how he or she makes medical decisions—after seeing patients, colleagues and others struggle to make decisions under a barrage of often-conflicting health information, including from experts.

“Despite all the advances in medicine and technology, the application of scientific principles to medicine and the sophisticated data analysis that we have now, there seems to be increasing controversy among experts about how to prevent or treat even the most common conditions,” Hartzband said. “Why are they disagreeing? How do patients make their decisions in the face of this kind of controversy?”

Adding to the difficulty, recent research in cognitive science has shown that the methods for decision-making taught in medical textbooks are “deeply flawed,” said Groopman.

Both set out to study this problem further through field research: interviewing scores of patients around the United States with a wide array of backgrounds and medical problems on how they make medical decisions. Some common threads emerged to become language in a new model.

In their model of the medical mind, the so-called “maximalist” is willing to do anything it takes to achieve the best treatment outcome,



*Drs. Pamela Hartzband and Jerome Groopman presented their concept of the “medical mind” at this year’s Stephen E. Straus Lecture.*

PHOTO: BRYAN EWSICHEK

while the “minimalist” thinks “less is more.” “Believers” tend to have strong faith in recommended treatments; “doubters” are more cautious. “Technologists” want the latest high-tech treatment or breakthrough and “naturalists” are more interested in options such as acupuncture, massage or herbal supplements.

These terms may be pictured as pairs of endpoints on axes, with many points in between. Not only do patients have medical minds, but also health-care providers, which affects the advice that they give, and larger entities such as committees and cultures.

So, what are people to do when they need to make a treatment decision in the context of experts disagreeing? “We think it’s essential to assess three dimensions,” said Groopman. “The starting point is your medical mind.”

The second dimension, presented by Hartzband, is the evidence—one should look at actual numbers and data and, to the extent possible, try to see how they apply to the individual. She demonstrated how the same statistics can be framed and presented in different ways, from drug ads to clinical-trial reports. “We all need to be very careful when looking at relative numbers rather than absolute ones...and making the best choice involves not only knowing the numbers but how you value them,” she said. Risk calculators on reliable web sites such as NIH’s, she suggested, help with a critical question: “What is my risk of a certain outcome without any treatment?”

Stories from other patients who were in the same medical situation, faced the option(s) we face and made a choice are the third area to assess. “In an era of science-based medicine and scientific thinking, stories are often dismissed as anecdotes,” Groopman said, adding that research by Daniel Gilbert indicates that these stories are useful in helping people choose and estimate the possible impact of an outcome on their life. One must watch for pitfalls, however, such as overestimating the likelihood that someone else’s rare side effect will happen to you.

The speakers expressed hope that their language and concepts based on field research would facilitate the process of shared decision-making and improve communication. They also urged keeping in mind that “every expert recommendation is subjective...[and] many areas in medicine fall into a gray zone where there’s not a clear right answer.”

To learn more, view the archived lecture at [videocast.nih.gov](http://videocast.nih.gov). 

## ATHLETICISM

CONTINUED FROM PAGE 1

### Top, r:

Prominent sports journalist David Epstein has been questioning the “gene-free model” of sports research.

PHOTO: RICH CLARK

Epstein described how favored athletic phenotypes have changed over the last century. “In the 1920s, the average white male build was thought to be optimal for athletes.” Now, the extremes are considered ideal, with large athletes getting larger (e.g., 7-ft.-tall basketball players), diminutive athletes getting smaller (e.g., female gymnasts) and “weird” body types getting weirder.

Epstein also explained the “10,000-hour rule” of sports, the basic tenet that assumes one can achieve mastery at a sport by engaging in deliberate practice for 10,000 hours—give or take a few thousand. The rule essentially levels the playing field, de-emphasizing the once-popular idea that athleticism was a gift that you either had or did not have.

But is that true? Epstein noted some glaring exceptions to this rule, in which an athlete, at first just average in ability, trains his entire life to eventually become the best, only to be defeated in competition by an unknown contender with little training experience but tremendous natural ability. How does the 10,000-hour rule hold up then, asked Epstein?

How specialized you become can also affect performance, he said. Consider record-breaking baseball player Barry Bonds, who once challenged softball pitcher and Olympic gold medalist Jennie Finch. Because he could hit fastballs going at speeds of 100 m.p.h., he assumed he could easily hit her bigger, slower softballs. To his surprise, she struck him out repeatedly, and she has done the same with other professional baseball hitters.

Epstein says that Bonds and other hitters like him train themselves for many hours to interpret and anticipate the body language of the typical fastball pitcher—eventually becoming so adept at reading signals that swinging decisions are made before the ball even starts moving. But Finch pitched using the underhand technique—a body cue Bonds was unaccustomed to. The experience prompted the question—was Bonds truly a talented, disciplined ball hitter, or had he just learned to read familiar signals? “Bonds had no contextualized practice against Finch,” said Epstein.

Epstein is careful to illustrate many examples in which intense training can lead to athletic success, but he urges sports and other scientists not to discount genetics. “Differences in genes may influence how we adapt to train-



ing—whether one is a low responder or a high responder.” He concluded with a quote from British pediatric endocrinologist J.M. Tanner: “Everyone has a different genotype. Therefore, for optimal development, everyone should have a different environment.”



NIDA director Dr. Nora Volkow (c) welcomes new members to the NIDA council: (from l) Gen. Arthur T. Dean, Dr. Stefanee Strathdee, Dr. Judith Auerbach and Dr. Eric Verdin. Not shown are Dr. Julie Blendy and Dr. John Carnevale.

### NIDA Welcomes New Council Members

The National Institute on Drug Abuse has announced the appointment of six new members to its National Advisory Council.

Dr. Judith Auerbach is a public sociologist, independent science and policy consultant and professor in the School of Medicine at the University of California, San Francisco.

Dr. Julie Blendy is a professor of pharmacology at the University of Pennsylvania’s Perelman School of Medicine.

Dr. John Carnevale is president of Carnevale Associates, LLC, a public policy consulting company that specializes in policy and program formulation, analysis and evaluation.

Gen. Arthur T. Dean is chairman and CEO of Community Anti-Drug Coalitions of America.

Dr. Stefanee Strathdee is associate dean of global health sciences, Harold Simon professor and chief of the division of global public health in the department of medicine at the University of California, San Diego, School of Medicine.

Dr. Eric Verdin is associate director and senior investigator at the Gladstone Institute of Virology and Immunology and professor of medicine at the University of California, San Francisco.





*This graphic, part of the NINDS Know Stroke campaign, features the signs of stroke and was among the top five graphics shared during NINDS's Twitter Chat on stroke.*

## NINDS Kicks Off Stroke Month with Twitter Chat

By Shannon E. Garnett

NINDS kicked off National Stroke Awareness Month this year by hosting its first ever Twitter chat. The goal of #StrokeTalk was to increase awareness of risk factors, treatment options and recent breakthroughs in research, including acute stroke therapy such as intra-arterial and endovascular approaches to breaking up and removing clots. The chat provided information on recognizing the signs of a stroke and the importance of taking immediate action once those symptoms occur. It also highlighted crucial things people can do to reduce their risk for stroke, such as maintaining a healthy blood pressure and not smoking and ways to reduce complications after a stroke. Throughout the chat, @NINDSnews (NINDS's main Twitter handle) tweeted vivid, informative graphics from the NINDS Know Stroke campaign to help reinforce key messages.

Nearly 800,000 strokes occur each year in the United States. Stroke is a leading cause of death in the country and causes more serious long-term disabilities than any other disease. Nearly three-quarters of all strokes occur in people over age 65 and the risk of having a stroke more than doubles each decade after age 55.

On hand to answer questions and provide information were several expert panelists including: NINDS director Dr. Walter Koroshetz, a noted neurologist; CNN chief medical correspondent Dr. Sanjay Gupta, who is also a practicing neurosurgeon; NINDS stroke neurologist Dr. Salina Waddy; Dr. Janet Wright, executive director of Million Hearts—a national initiative to prevent 1 million heart attacks and strokes by 2017; Dr. Kevin Barrett, a vascular neurologist and co-director of the Primary Stroke Center at Mayo Clinic in Jacksonville, Fla.; and Dr. David Miller, an interventional neuroradiologist and medical director of the Stroke Center at Mayo Clinic, Jacksonville.

More than 1,300 unique Twitter handles partici-

pated in the chat, which generated more than 2,500 tweets, reached more than 7.8 million people and rendered more than 128 million impressions, which help measure the impact and/or exposure of a message.

Koroshetz provided one of the most popular retweets: "Problem is that many people think to take a nap when they experience #stroke symptoms. Wrong response! Go to the ER!!!!!! #StrokeTalk." This single tweet yielded more than 2 million impressions alone.

Participants spanned a wide spectrum—from the general public to health care professionals—with questions ranging from general stroke data to specific discussions and comments on treatments and research.

Based on the popularity of Twitter chats and the success of its first effort, the NINDS social media team plans to host more chats. 🗣️



*New Children's Inn therapy dog Zilly makes friends with (from l) Zevaeh Daugherty and siblings Sydney Coore and Ethan Coore.*

PHOTOS: CHRISTINE BERZAK

## New Therapy Dog for Children's Inn

Studies show that having a furry companion can lead to several positive emotional and physical benefits. After the Children's Inn at NIH's previous therapy dog retired, the inn formed a "BARK committee" to consider a replacement. Recently, a 1-year-old pup arrived at the inn and, after a trial period, was pronounced a perfect fit.

Zilly is a multi-generational Australian Labradoodle, a breed known to be hypoallergenic, friendly, energetic and good with families and children. Her breeder had noticed her gentle and calm temperament from a young age. Because of these characteristics, the breeder wanted to place her as an aid/therapy dog.

Zilly's duties at the inn include playing games of fetch, performing tricks, enjoying petting and belly rubs and hanging out with children in the playroom, learning center and at bingo and other activities.

"Zilly brings so much comfort, security and just plain fun to our special families," says Jennie Lucca, inn CEO. "She is definitely an extrovert and gets her energy from being around the kids. She has a lovable personality and it's great to watch children playing fetch with her or getting down on all fours and cuddling with Zilly."



## SICKLE CELL

CONTINUED FROM PAGE 1

**Above:**  
**Team work.** *Gathering after the lecture are (from l) senior investigator Dr. John Tisdale, who serves as medically responsible investigator on the sickle cell study; NIDDK director Dr. Griffin Rodgers, associate investigator; Dr. Swee Lay Thein, NHLBI senior investigator and head of the Sickle Cell Branch; assistant clinical investigator Fitzhugh, principal investigator on the study; Dr. Nargues Weir, co-director of research development at the NIH-Inova Advanced Lung Disease Program and pulmonary consultant; and staff clinician Dr. Matthew Hsieh, lead associate investigator.*

**Below:**  
*A graphic artist whose work (shown on screen at left) has won an award, Taiwo describes her improved health at a recent Grand Rounds.*

PHOTOS: BILL BRANSON

been 30 years old and had already had more than 50 blood transfusions to treat her SCD before coming to NIH—rose from the front row and took to the lectern.

“Before the transplant, I was in constant pain and it was always a struggle whether to stay at home or go to the emergency room,” said Adeyinka Taiwo. “Because it was just constant pain all the time. But now I actually have mornings when I wake up with absolutely no pain...I’m trying my best to wean myself off of the [pain medications] and not automatically reach for the drugs that are a part of me. It’s a big change, definitely.”

“How is your daily life different now?” Fitzhugh asked.

“I walked from the elevators to here and I’m not out of breath,” Taiwo replied, smiling and gesturing toward the Lipsett Amphitheater staircase. “Three years ago, I would never have been able to move up and down these steps and have a conversation like this. I would have been out of breath and I would have had to stop many times to catch my breath, and to rest.”

Her simple, heartfelt words prompted spontaneous applause.

Clinicopathologic (CPC) Grand Rounds are presented several times a year. Dr. Michail Lionakis of NIAID described the unique format of CPC talks, which bring together multiple presenters from various disciplines.

The sickle cell session was presented jointly by researchers from the National Heart, Lung, and Blood Institute; National Cancer Institute; National Institute of Diabetes and Digestive and Kidney Diseases;

and the NHLBI-Inova Advanced Lung Disease Program.

Lionakis said the CPC series has two missions: One is educational—“Through presentation of interesting cases that have interesting clinical, diagnostic and therapeutic features, we all learn”—and the other is to showcase programs established at NIH that demonstrate “the superb clinical care and translational research that occurs in the Clinical Center.”

SCD is a common genetic blood disorder that affects about 100,000 people in the U.S. The disease is diagnosed in 1 of every 500 black or African-American births, and 1 in every 36,000 Hispanic-American births. The disease causes misshapen—sickle-shaped—red blood cells, which are the oxygen-carrying cells.

Sickled cells do not circulate freely throughout the body like normally shaped cells. As a result, patients can develop any of several conditions including chronic anemia, pain, infections and failure of such vital organs as liver, lungs and heart. Average age of death for someone with SCD is 45 years old.

“While sickle cell disease is considered a benign hemoglobinopathy,” explained NHLBI’s Dr. Matthew Hsieh, “it’s not really. It is associated with extensive morbidity and chronic complications such as liver, pulmonary and other organ system damage, and really does lead to early mortality.”

Earlier Fitzhugh described diagnostics on two SCD patients: Taiwo, who had chronic back pain, pulmonary hypertension, fatigue and had 27 hospitalizations in the past 3 years; and a 22-year-old African-American man from New York who’d had 20 to 30 blood transfusions over his lifetime with 1 to 3 hospitalizations every year. Both were evaluated at NIH for potential stem cell transplants.





Other presenters included NCI's Dr. David Kleiner, who showed pathology findings and pointed out pre-transplant liver damage in the 22-year-old's slides.

"In sickle cell disease," he explained, "what happens is you get clumping of the red cells in the sinuses of the liver. The sickle shape of the cells gets hung up in the liver sinuses." That congested cell traffic impedes forward blood flow into the liver. Back flow from heart problems or pulmonary hypertension can further worsen liver damage.

NIDDK's Dr. Christopher Koh described liver disease associated with SCD. In the NIH study, SCD patients showing liver disease were found to be sicker, and have increased mortality risk, than the other participants.

Dr. Nargues Weir, codirector of research development with the NHLBI-Inova Advanced Lung Disease Program, talked about the three different types of pulmonary hypertension, or high blood pressure in the arteries of the lung, caused by SCD. All three types are associated with worse survival, she noted.

Hsieh concluded by presenting results from three decades of patients in studies of SCD stem cell transplantation, dating back to 1984. Disease-free survival for children undergoing full transplant is better than 95 percent with few complications, he noted.

Full stem cell transplantation is standard treatment for children, Hsieh said, and partial transplants can be considered standard now for adults.

"In the last decade we've really made good progress," Hsieh continued. "Disease-free survival for adults undergoing partial transplant is now approaching the 90 to 95 percent mark seen in children...Our patients tell us that they feel better. They can do more and they have better stamina." They visit the ER less and gradually are able to reduce reliance on prescription narcotics for pain relief.

The best evidence of the procedure's success, however, gave her own testimony in person 2 years after transplant, as Grand Rounds closed.

"Well, my son knows I'm his mother now because I'm not usually in the hospital," Taiwo quipped, referring to her active 4-year-old. "I can actually play with him, go to the playground, do normal things. He pretty much doesn't know me when I had sickle cell. He knows me as a healthier mother...Now, I can keep my promises—when I say I'm going to be somewhere, I can actually be there."

View the entire lecture at <http://videocast.nih.gov/summary.asp?Live=16386&bhcp=1>. 📺



NIAMS director Dr. Stephen Katz and Rep. Rodney Frelinghuysen (center, standing) with patient-advocates, Arthritis Foundation staff and NIAMS staff

PHOTO: BILL BRANSON

## Congressman Joins Constituents on Visit to NIAMS

U.S. Rep. Rodney Frelinghuysen (R-N.J.) recently visited NIH along with juvenile arthritis patient-advocates from his region. Staff from the Arthritis Foundation also participated. The purpose was to learn more about NIAMS-supported research on juvenile arthritis.

The event began with a roundtable conversation between the visitors and NIAMS director Dr. Stephen Katz, deputy director Dr. Robert Carter, scientific director Dr. John O'Shea and deputy clinical director Dr. Robert Colbert, along with several intramural researchers who specialize in rheumatology and autoimmune diseases.

Frelinghuysen expressed his support for the work being done at NIH. He is a long-time friend of biomedical research and an advocate for NIH funding. The patients shared moving stories about the challenges they face living with arthritis. Most were diagnosed at a young age and have struggled to find effective long-term treatments. Katz assured them that while significant progress has been made, NIH continues to work hard to develop new therapeutics for different forms of arthritis.

Katz described how several ICs share an interest in arthritis and immunology. He also explained how NIH supports the training of basic and clinical scientists and how it works with outside organizations such as the Arthritis Foundation to accelerate development of treatments through the Accelerating Medicines Partnership and networks such as the Childhood Arthritis and Rheumatology Research Alliance. Katz also elaborated on efforts to provide patients with reliable, science-based information about their diseases and conditions, which is available in several languages.

Colbert took the group to see the pediatric rheumatology clinic and then led them through two intramural research labs. They saw demonstrations that focused on basic, translational and "bedside-to-bench" studies currently under way. First, Dr. Massimo Gadina, director of the Office of Science and Technology, showed them two types of cell sorters that assist clinicians in both diagnosis and treatment. He described how this technology can help researchers visualize gene activity associated with autoimmune diseases.

Frelinghuysen and his guests then heard from Dr. Michael Ombrello, head of the translational genetics and genomics unit. He demonstrated a machine called the ultrasonicator, which uses sound energy to shear DNA into small pieces for analysis. He is using this technology to conduct genomic research on systemic juvenile idiopathic arthritis. He also discussed his current work investigating the causes of this severe disease and how this research may lead to targeted treatments for patients in the future.

"Everyone learned firsthand about the critical work of the NIAMS and the promising research it is doing," said Frelinghuysen. One of the patients added, "It was a great experience to be able to share my story. I loved the lab tours and discovering the technology being used to find cures for diseases like mine." —Sara Rosario Wilson

## SINEK

CONTINUED FROM PAGE 1



*"Leaders set the environment and they get the environment they set," Sinek said.*

PHOTOS: BILL BRANSON

Sinek said leaders can foster trust and loyalty by offering incentives that get employees to act in their own best interests, such as using bonuses to reward outstanding work.

"It turns out the human body works exactly the same way as an organization," he noted. "There's a system of chemical rewards that's designed to reward us when we perform behavior that's in our best interests."

According to Sinek, feelings such as pride, joy, happiness or love can be mostly explained by four brain chemicals: endorphins, dopamine, serotonin and oxytocin. They helped our ancestors thrive in a dangerous world for thousands of years. Even though the world has changed, these chemicals still influence people.

Endorphins mask physical pain. Sinek noted that these chemicals helped our ancestors continue to look for food even when they were tired or injured. Today, endorphins are produced in response to vigorous exercise.

"Dopamine is responsible for the feeling we get when we find something we're looking for, or when we accomplish something," he said.

Dopamine comes with "fine print," he warned. It's highly addictive. Behaviors like smoking a cigarette, drinking alcohol or gambling trigger its release.

Sinek called endorphins and dopamine "selfish" compounds, because "you don't need anybody's help to get them," he said. The feelings they evoke, however, don't last. People have to do the same thing over and over to experience them again.

"The other two chemicals exist to balance endorphins and dopamine out," he said. "These are the chemicals that make us human."

Serotonin is the "leadership chemical." It's responsible for feelings of pride, status and self-confidence. It activates when people are publicly recognized. He said college graduation ceremonies are examples of serotonin at work. When a graduate walks across the stage, serotonin activates. At the same time, the chemical also activates in his or her parents. Everyone feels proud.

Sinek said serotonin builds loyalty and trust in organizations. When leaders support their employees, they respond by working hard. Employees don't want to let their leaders down. So they do their best.

Oxytocin is released through human touch and

proximity. It's why people hang out with their friends even if they are just watching television. People are social animals. They enjoy each other's company.

Another way oxytocin is released is by acts of goodwill or generosity, when people give up their time and expect nothing in return. People often admire and value those who give something away and don't expect to get something back. He added that people on the receiving end of such acts of generosity also receive an oxytocin boost.

"This is our body's way of trying desperately to get us to look after each other, because it feels really good when we do," he said. The buildup of oxytocin also boosts the immune system. "Generous people are happier and happier people live longer."

Like getting in shape, becoming a leader doesn't happen overnight, Sinek said. It requires education, learning and practicing empathy and concern for others. After a while, though, it gets easier. In return, employees become more loyal, work hard and become more engaged and productive.

"Leaders set the environment and they get the environment they set," he said. 🧠

### What Does a Depressed Person's Brain Look Like?

The purpose of this brain imaging study is to see if depressed individuals, ages 18 and older with major depressive disorder, have increased inflammation in their brain. The study involves four outpatient visits or a brief inpatient stay at the Clinical Center. Procedures include blood tests, medical evaluations and two brain scans (PET and MRI). Participants do not need to stop their current medications. Those not eligible to participate include pregnant women, current smokers and individuals with serious medical conditions. There is no cost to participate. For more information, visit [www.nimh.nih.gov/JoinAStudy](http://www.nimh.nih.gov/JoinAStudy), call 1-877-646-3644 (TTY 1-866-411-1010) or email [moodresearch@mail.nih.gov](mailto:moodresearch@mail.nih.gov). Refer to study 13-M-0100.

### Healthy Children Needed

NICHHD seeks healthy overweight children 7 to 11 years old to join in a research study. Researchers want to learn if breaking up sitting with short periods of activity improves children's metabolism and attention. Compensation will be provided. Parents/guardians must give permission for children to participate. For more information, call 1-866-444-2214 (TTY 1-866-411-1010) and refer to study 13-CH-0169.



Have a question about some aspect of working at NIH? You can post anonymous queries at [www.nih.gov/nihrecord/index.htm](http://www.nih.gov/nihrecord/index.htm) (click on the Feedback icon) and we'll try to provide answers.

**Feedback:** The Bldg. 21 parking lot loop was made one-way several years ago. However, I frequently observe people driving the wrong way, especially in the afternoons. I have had a couple close calls with hitting such vehicles. It might make it more obvious to folks that the loop is one-way if there were arrows painted on the pavement around the loop and/or the parking spaces were made angled. There is little signage and not really that many places to add any. Can anything be done?

**Response from the Office of Research Facilities and Office of Research Services:** ORF, in collaboration with the ORS Division of Amenities and Transportation Services, has agreed to paint additional one-way directional arrows in the parking lot behind Bldg. 21 to create a clearer, safer parking experience for employees.

**Feedback:** I was reading an article in *The Atlantic* about Surgeon General Koop & HIV. The story mentions that in the mid-1980s: "Koop and his wife lived in the surgeon general's official residence on the campus of the National Institutes of Health, in Bethesda, Maryland. Two hundred feet away was the office of Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases and the government's most visible HIV/AIDS scientist." The article then goes on to mention how Fauci was Koop's personal physician and then eventually his friend. Where is the building that served as Koop's "official residence?" Does the surgeon general still live on the NIH campus today? And if not, when did this practice end, and why? And when did it begin? It sounds like a cool bit of history!

**Response from ORF:** From 1982 to 1989, the building that served as the official residence of Surgeon General C. Everett Koop was 15D-1, part of what is commonly referred to as the "Quarters," a set of six double quarters and two single detached houses on the north side of campus reserved as living quarters for senior NIH and HHS staff. Today's policy states, Bldgs. 15H and 15I are "reserved for the NIH Direc-



*Recently, senior officials including the surgeon general were not interested in residing in 15H (left) and 15I, shown here looking east along the main campus's North Drive, which is parallel to Cedar Lane.*

PHOTOS: ERIC BOCK

tor and the Assistant Secretary for Health (ASH)...[but] if for any reason they choose not to occupy either residence, the Surgeon General may be assigned to these Quarters."

Recently, senior officials including the surgeon general were not interested in residing in 15H and 15I and the units were made available to graduate student fellows working in NIH laboratories. Some other buildings house NIH administrative space. All occupants of the Quarters are required to pay market rental rates. The first surgeon general to live on the NIH campus was RADM Thomas Parran, Jr. He lived in the 15K residence, also known as "Treetops," until 1948.

**Feedback:** This may have been addressed in the past. I'm not sure. But as I was taking the shuttle bus from main campus to my building, I was wondering why don't we double the shuttle bus use during rush hours? Morning's when people are coming to work and evening's when employees are trying to get home. And why can't we have the shuttle bus going in both directions? It would save employees so much time and effort.

**Response from ORS:** Thank you for your suggestion to double shuttles during rush hours and send shuttles in both directions. The Division of Amenities and Transportation Services, Office of Research Services manages the NIH Shuttle Program. Your suggestion is valid and one that we have examined in the past, and based on your feedback, we will study this option again. While we review this, please note that we are under budgetary limitations and the shuttle system is an expensive one to operate. Budget reductions have forced the Shuttle Program to reduce services to a level that meets the basic needs of NIH and regulatory requirements. Adding additional shuttles, if only for peak periods, would require shifting resources or eliminating other vital ORS services.

In regards to your suggestion to have shuttles going in both directions, currently we have two Campus shuttles traverse the campus counterclockwise while the Campus Limited shuttle operates clockwise around the campus. We also have two shuttles that do run at the same time on the Executive Plaza and Rockledge routes. During rush-hour or peak times, three shuttles operate on the Montrose route. The Perimeter shuttle operates during the peak morning and evening hours, but operates as the Campus Limited the rest of the day. Shuttle routes have undergone extensive evaluations to accomplish peak efficiency and maximize timeliness.

We believe our customers are top priority and suggestions from our customers are always welcome and needed. If you have additional suggestions, complaints or compliments, contact Shuttle Program Manager Louise Davis at (301) 496-9621 or [davislou@mail.nih.gov](mailto:davislou@mail.nih.gov).

# milestones

## NIAID's Hadlow Mourned



*Dr. Bill Hadlow, who started a prion disease research program at Rocky Mountain Laboratories, died June 20.*

Dr. William J. "Bill" Hadlow, who in 1961 started what has become a world-renowned prion disease research program at Rocky Mountain Laboratories (RML) in Hamilton, Mont., died June 20 at age 94.

Self-described as "old school," Hadlow trusted his experience, trained eyes and careful observation in place of new technology, particularly when examining the brain. Be thorough. Go slowly. Those are the attributes from his career that he shared with budding scientists in a 2004 interview with the Office of NIH History.

Hadlow was recruited to work at RML in 1952 as its veterinary pathologist. Except for a U.S. Department of Agriculture assignment in the United Kingdom from 1958 to 1961, he remained at RML in that capacity until retiring on May 30, 1987. After retiring, he remained in Hamilton and regularly met with colleagues to discuss research projects; he even pursued a few writing projects simply to satisfy his curiosity, such as tracing the origin of the Conestoga horse.

"Bill was a wonderful colleague over many years at the lab," said Dr. Bruce Chesebro, who now oversees prion disease research at RML. "I will always remember his engaging smile and excellent, dry sense of humor."

Dr. Marshall Bloom, RML associate director for scientific management, recalled that Hadlow's studies are what attracted him to RML in 1972. "Bill's work on the chronic virus infection of mink, called Aleutian disease, got me interested in virology," Bloom said. "I had great respect and affection for him."

Hadlow's early years at RML were extremely challenging, according to his 2004 interview, because he had to learn about a variety of diseases that were new to him.

"Psittacosis. Plague. Tularemia. Rocky Mountain spotted fever. They were totally unfamiliar to me," Hadlow said. To make the situation more difficult, word quickly spread in the community that RML had a veterinary pathologist on staff. "There were all of these animals being brought in, and I was sort of the village pathologist," he said. "Farmers' wives would drag in chickens" and others brought calves and lambs

for diagnoses. Hadlow said he taught himself to understand animal pathology "from a mouse to a moose."

And in doing so, he took animal research at RML to a new level, studying the progression of diseases.

In April 1961, when Hadlow returned to RML from research in the United Kingdom, he brought with him brains from mice infected with scrapie, a little known brain-wasting disorder in sheep and goats. Dr. Carl Eklund, the man who recruited Hadlow to RML, strongly encouraged him to start a scrapie disease research program unlike any other, looking at the distribution of the disease, the organs it affected and sites where the disease replicated. His was the first group at NIH to study these so-called "slow virus" infections. Hadlow made significant contributions to the field that is now referred to as prion diseases. In addition to making seminal comparisons between scrapie and the human disease kuru, he played a crucial role in identifying chronic wasting disease and bovine spongiform encephalopathy (mad cow disease) as prion diseases. In the 1970s, Hadlow assisted future Nobel Prize-winner Dr. Stanley Prusiner with characterizing the enigmatic prion protein at RML.

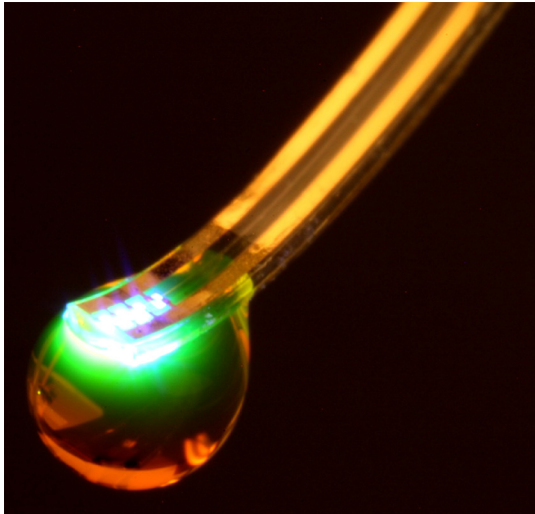
Hadlow's primary talent was in studying animal brains and identifying areas of disease or concern. He was so skilled that he often was called on to consult for others: in 1963, the Centers for Disease Control and Prevention asked him to investigate a neurological disorder in mink in Idaho and Wisconsin; he was later sent to the Soviet Union for 6 weeks to investigate the transmissibility of Lou Gehrig's disease (amyotrophic lateral sclerosis).

He was chosen to receive the 1992 Olafson Medal, given to veterinary pathologists for their dedication and contributions to diagnostic service, teaching and research. In 1987, he was named a distinguished member of the American College of Veterinary Pathologists, a group he led as its president in 1978. He also received an NIH Superior Service Honor Award in 1970.

Hadlow was born in West Park, Ohio. He attended Ohio State University and received his DVM, *summa cum laude*, in 1948. Later, he was an instructor in the College of Veterinary Medicine at the University of Minnesota while continuing studies in pathology at the University of Minnesota Medical School. While in Minnesota, Hadlow met Evelyn O'Connor and they married in 1952; she preceded him in death in 1985. Hadlow is survived by a son, a daughter, and two brothers.



## digest



**Mind-Bending Probe:** Scientists used soft materials to create a brain implant a tenth the width of a human hair that can wirelessly control neurons with lights and drugs.

PHOTO: JEONG LAB, UNIVERSITY OF COLORADO

### Futuristic Brain Probe Allows for Wireless Control of Neurons

A study showed that scientists can wirelessly determine the path a mouse walks with a press of a button. Researchers at Washington University School of Medicine, St. Louis, and the University of Illinois, Urbana-Champaign, created a remote controlled, next-generation tissue implant that allows neuroscientists to inject drugs and shine lights on neurons deep inside the brains of mice. The revolutionary device is described online in the journal *Cell*. Its development was partially funded by NIH.

“It unplugs a world of possibilities for scientists to learn how brain circuits work in a more natural setting,” said Dr. Michael Bruchas, associate professor of anesthesiology and neurobiology at WUSM and a senior author of the study.

His lab studies circuits that control a variety of disorders including stress, depression, addiction and pain. Typically, scientists who study these circuits have to choose between injecting drugs through bulky metal tubes and delivering lights through fiber-optic cables. Both options require surgery that can damage parts of the brain and introduce experimental conditions that hinder animals’ natural movements.

To address these issues, scientists constructed a

remote-controlled, optofluidic implant. The device is made out of soft materials that are a tenth the diameter of a human hair and can simultaneously deliver drugs and lights.

“This is the kind of revolutionary tool development that neuroscientists need to map out brain circuit activity,” said Dr. James Gnadt, program director at NINDS. “It’s in line with the goals of the NIH’s BRAIN Initiative.”

### In Blinding Eye Disease, Trash-Collecting Cells Go Awry, Accelerate Damage

Spider-like cells inside the brain, spinal cord and eye hunt for invaders, capturing and then devouring them. These cells, called microglia, often play a beneficial role by helping to clear trash and protect the central nervous system against infection. But a new study by researchers at NEI shows that they also accelerate damage wrought by blinding eye disorders, such as retinitis pigmentosa.

“These findings are important because they suggest that microglia may provide a target for entirely new therapeutic strategies aimed at halting blinding eye diseases of the retina,” said NEI director Dr. Paul Sieving. “New targets create untapped opportunities for preventing disease-related damage to the eye, and preserving vision for as long as possible.” The findings were published in the journal *EMBO Molecular Medicine*.

Retinitis pigmentosa, an inherited disorder that affects roughly 1 in 4,000 people, damages the retina, the light-sensitive tissue at the back of the eye. Research has shown links between retinitis pigmentosa and several mutations in genes for photoreceptors, the cells in the retina that convert light into electrical signals that are sent to the brain via the optic nerve. In the early stages of the disease, rod photoreceptors, which enable us to see in low light, are lost, causing night blindness. As the disease progresses, cone photoreceptors, which are needed for sharp vision and seeing colors, can also die off, eventually leading to complete blindness.

The findings suggest that therapeutic strategies may help decelerate the rate of rod photoreceptor degeneration and preserve vision, said lead investigator Dr. Wai T. Wong, chief of NEI’s unit on neuron-glia interactions in retinal disease.

### Boys More Likely to Have Antipsychotics Prescribed, Regardless of Age

Boys are more likely than girls to receive a prescription for antipsychotic medication regardless of age, researchers have found. Approximately 1.5 percent of boys ages 10-18 received an antipsychotic prescription in 2010, although the percentage falls by nearly half after age 19. Among antipsychotic users with mental disorder diagnoses, attention deficit hyperactivity disorder was the most common among youth ages 1-18, while depression was the most common diagnosis among young adults ages 19-24 receiving antipsychotics.

Despite concerns over the rising use of antipsychotic drugs to treat young people, little has been known about trends and usage patterns in the United States before this latest research, which was funded by NIMH. The findings were reported July 1 in *JAMA Psychiatry*.

“No prior study has had the data to look at age patterns in antipsychotic use among children the way we do here,” said co-author Dr. Michael Schoenbaum, senior advisor for mental health services, epidemiology and economics at NIMH. “What’s especially important is the finding that around 1.5 percent of boys aged 10-18 are on antipsychotics, and then this rate abruptly falls by half, as adolescents become young adults.

“Antipsychotics should be prescribed with care,” said Schoenbaum. “They can adversely affect both physical and neurological function and some of their adverse effects can persist even after the medication is stopped.”





Staff from the Office of Human Resources turn out on parking lot 10H to help fill the truck with donations.

PHOTOS: ERIC BOCK

## Feds Feed Families Campaign Under Way at NIH

For many NIH'ers, summer means fresh fruits and vegetables, cookouts and ice cream. For many area families, however, summer means hunger.

To help those in need, NIH is participating in the 7th annual Feds Feed Families campaign, a summer food drive to benefit area charities. This year, NIH hopes to collect more than 20,000 pounds of food.

Until Aug. 26, employees can drop off non-perishable, unopened food items and hygiene products at one of 15 donation boxes on campus and 23 boxes off campus. Employees can also drop off their donations at "Fill the Truck" events on Aug. 11, 12, 18 and 19 in front of Bldg. 1.

Most of the donations will be given to the Capital Area Food Bank. A portion will also be given to the Edmond J. Safra Family Lodge at NIH and the Children's Inn at NIH.

Need increases during the summer months, said Yasmin Rheubottom Mörch, the lodge's manager of operations and guest relations. Many patients who stay at the lodge have spent most of their money on medical treatment.

"Admissions in clinical studies at NIH increase during the spring and summer months when donations are at their lowest," she said. "There are a lot of people just trying to make ends meet. Feds Feed Families gives us an extra boost that can last into the fall months."

Over at the inn, there are three kitchens, each with a "help yourself" pantry stocked daily with non-perishable items. The campaign helps keep the inn's pantries full.

"We are incredibly grateful to the NIH community in donating these food items to help meet the basic needs of our families during the summer months when donations are very slow," said Laura King, senior director of volunteers and community outreach at the inn.

For a complete list of on- and off-campus donation box sites, visit [www.ors.od.nih.gov/FedsFeedFamilies/Pages/default.aspx](http://www.ors.od.nih.gov/FedsFeedFamilies/Pages/default.aspx). —Eric Bock



Above, OHR employee relations specialist Ruth Rose and Woodrow "Spike" Harrison of NIH's Fleet Management Branch showcase examples of non-perishable foods. Below, OHR intern Starsky Cheng drops off a bag of non-perishable food at the July 13 "Fill the Truck" event.

